

A new species of *Excorallana* Stebbing (Crustacea: Isopoda: Corallanidae) from the Pacific coast of Mexico, and additional records for *E. bruscai* Delaney

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Abstract.—The genus *Excorallana* Stebbing is represented in the Mexican Pacific by four species. A fifth species, *E. conabioae* is recognized among material collected offshore from a depth range of 28–70 m. *Excorallana conabioae* is readily separated from Atlantic and Pacific species of this genus without horns on cephalon and/or pereonite 1. Among the “horned” species, *E. conabioae* most closely resembled *E. bruscai*, from which it differs by the size and orientation of cephalic horns-like processes, the presence of 3 pairs of small horns-like processes or tubercles on pereonite 1, its much longer antenna, and the presence of a sub-lateral cluster of tubercles on each side of the telson. New records of *E. bruscai* indicate that it is distributed throughout the Gulf of California area from the intertidal to at least 55 m.

The genus *Excorallana* Stebbing, 1904, belongs to the family Corallanidae (Bruce et al. 1982). It is represented in the Mexican Pacific by four species (one as a subspecies): *E. truncata* (Richardson, 1899), *E. tricornis occidentalis* Richardson, 1905, *E. bruscai* Delaney, 1984 and *E. houstoni* Delaney, 1984. In addition to this, Brusca (1980) reported specimens of an undescribed species of *Excorallana* from the entire Gulf of California. Brusca (1980) also reported *E. kathyae* Menzies, 1962, from the Gulf of California, but this species has since been synonymized with *E. truncata* (Delaney, 1982). In its review of the family Corallanidae, Delaney (1989:32) reported 18 species (one with two subspecies) of *Excorallana*. In all, the genus *Excorallana* contains 22 species, including those cited by Delaney (1989), *E. bicornis* Lemos de Castro & Lima, 1976, *E. yamamuroae* Nunomura, 1988, and *E. delaneyi* Stone & Heard, 1989. Except for one record of *E. oculata* (Hansen, 1890) at Annobon Island, West Africa, the genus is known only from the coasts of America (Delaney 1989). In

addition to the four above-mentioned Mexican species, only one other member of the genus is known from the East Pacific: *E. meridionalis* Carvacho & Yañez, 1971, from Chile.

Recent collection of invertebrates along the Pacific coast of Mexico (Espinosa-Pérez & Hendrickx, 1997, Hendrickx & Espinosa-Pérez, 1998) led to the capture of large series of intertidal and sub-tidal isopods, among which a new species of *Excorallana* was recognized. The new species is close to *E. bruscai*, yet it contains distinctive characters that separate it from this species and from any other previously known species of *Excorallana*.

Abbreviations used in this paper are: St., sampling station; TL, total length; coll., collector; EMU, Estacion Mazatlan UNAM Invertebrates Reference Collection; USNM, United States National Museum, Smithsonian Institution, Washington D.C., U.S.A.; SEM, Scanning Electronic Microscope; CEEMEX P4, research cruise in the Gulf of Tehuantepec (1991); CORTES 1, 2 and 3, research cruises in the Gulf of California

(1982 and 1985); BBMAZ C, monthly research cruises in the Bay of Mazatlan, Mexico (1979–1981). All specimens reported herein were collected by the staff of the Laboratorio de Invertebrados Bentónicos, Estación Mazatlán, ICML, UNAM.

Corallanidae Hansen, 1890

Excorallana Stebbing, 1904

Excorallana conabioae, new species

Figs. 1–5

Type material.—Holotype, 1 male (TL 10.0 mm), CORTES 2 Cruise, St. 8, San Marcial Point (25°02.03'N, 108°30.08'W), Baja California Sur, Mexico, 11 Mar 1985 (EMU-4942). Paratype, 1 female (TL 11.4 mm), CORTES 1 Cruise, St. 8, Carmen Island (25°34.06'N, 111°58.07'W), Baja California Sur, Mexico, 4 May 1982 (EMU-4943). Paratypes, 1 male (TL 13.0 mm), CORTES 3 Cruise, St. 8, San Marcial Point (25°33.04'N, 110°59.08'W), Baja California Sur, Mexico, 30 Jul 1985 and 1 female (TL 9.0 mm), CORTES 1 Cruise, St. 8, Carmen Island (25°34.06'N, 111°58.07'W), Baja California Sur, Mexico, 4 May 1982 (mounted for SEM photography) (EMU-4944). Paratypes, 1 male (TL 10.0 mm) and 1 female (TL 9.8 mm), CORTES 1 Cruise, St. 8, Carmen Island (25°34.06'N, 111°58.07'W), Baja California Sur, Mexico, 4 May 1982 (EMU-4945). Paratypes, 1 male (TL 10.4 mm) and 1 female (TL 12.4 mm), CORTES 1 Cruise, St. 8, Carmen Island (25°34.06'N, 111°58.07'W), Baja California Sur, Mexico, 4 May 1982 (EMU-4946). Paratypes, 1 male (TL 10.5 mm), CORTES 3 Cruise, St. 8, San Marcial Point (25°33.04'N, 110°59.08'W), Baja California Sur, Mexico, 30 Jul 1985 (USNM 239375), and 1 female (TL 11.7 mm), CORTES 1 Cruise, St. 8, Carmen Island (25°34.06'N, 111°58.07'W), Baja California Sur, Mexico, 4 May 1982 (USNM-239374) (all specimens collected aboard the R/V *El Puma*).

Additional material.—CORTES 1 Cruise, St. 8, Carmen Island (25°34.06'N,

111°58.07'W), Baja California Sur, Mexico, 4 May 1982, 6 females (TL 8.1–12.4 mm) (EMU-4947). CORTES 3 Cruise, St. 19, San Miguel Cape (28° 06.04'N, 112° 47.01'W), Baja California, Mexico, 1 Aug 1985, 1 ovigerous female (TL 10.6 mm) (EMU-4948) (all specimens collected aboard the R/V *El Puma*).

Description.—Male. Body elongate, with nearly sub-parallel margins, about 3.3 times as long as wide. Anterior margin of cephalon slightly produced in dorsal view, forming a very small rostral point. Cephalon with a pair of conspicuous, anterior horn-like processes between eyes, a smaller pair between anterior pair and anterior border of pereonite 1; distance between tubercles of second pair about ½ distance between tubercles of anterior pair. Eyes large, extending somewhat obliquely over the entire length of cephalon (Fig. 1C). Antennule (3 peduncular articles) containing 7–9 flagellar articles, almost reaching anterolateral angle of pereonite 1 (Fig. 2A). Antenna with 29–34 flagellar articles, all with fringe of short or long setae; flagellum long, reaching about midlength of fourth pereonite (Fig. 2B). Frontal lamina with anterior margin narrowing to rounded apex (Fig. 1A). Right mandible with elongate incisor, with 1 apical and 1 shorter sub-apical cusps; lacinia reduced, represented by a small 2-spined lobe. Left mandible with elongate incisor, with one apical and two shorter sub-apical cusps; lacinia reduced, represented by a small 2-spined lobe; small molar process present on left mandible only; middle and distal articles of palp of both mandibles with few plumose (right) and non-plumose (both) setae. Maxilla with trilobed, spinose apex. Maxilliped with a 5-segmented flagellum; last 3 articles of palp with numerous setae, antepenultimate article longer than the combined length of last two articles (Fig. 3).

Pereonite 1 with 2 pairs of dorsal horn-like processes, set on transverse line, inner pair larger, of about same size as anterior cephalic, outer pair considerably smaller;

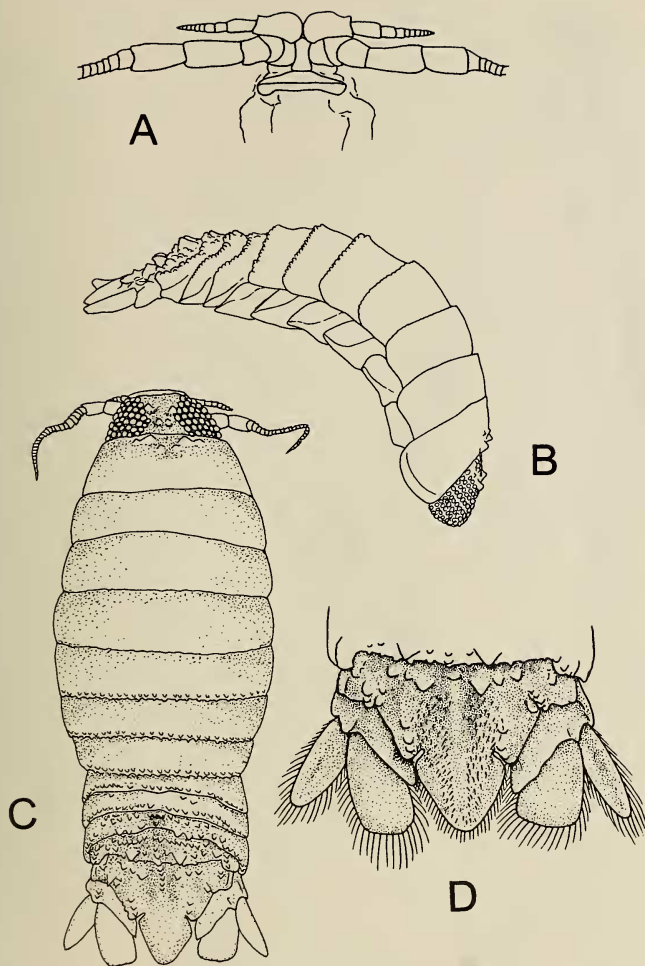


Fig. 1. *Excorallana conabioae*, new species, male holotype (EMU-4942). A, frontal lamina, clypeus and labrum; B, lateral view; C, dorsal view; D, pleotelson. (Total length, 10.0 mm).

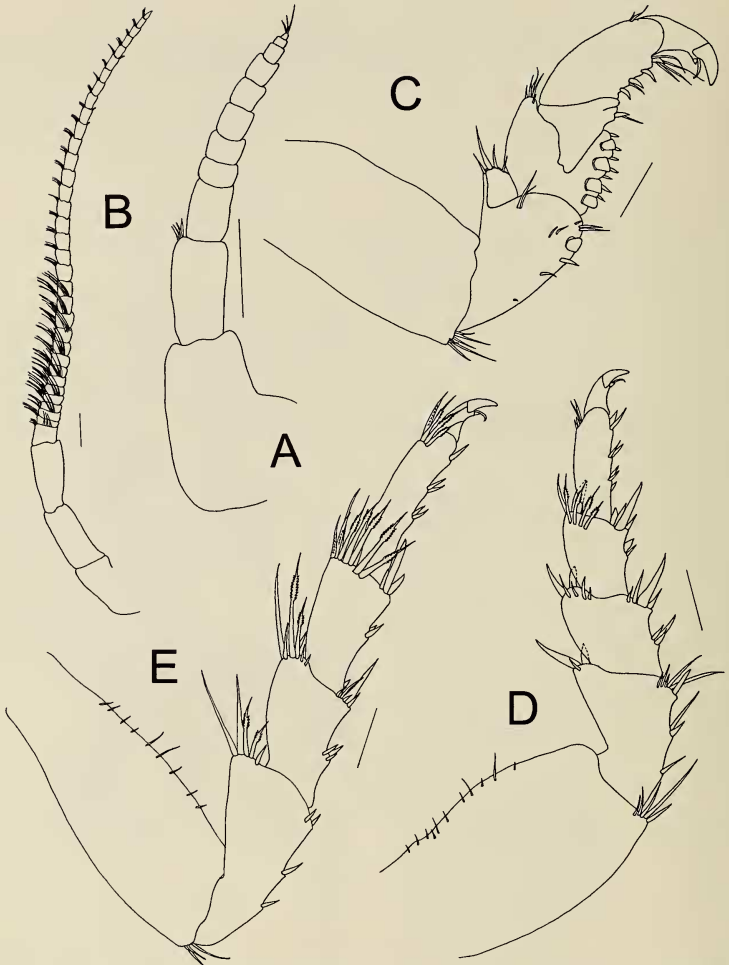


Fig. 2. *Excorallana conabioae*, new species, male holotype (EMU-4942). A, right antennula; B, right antenna; C, right pereopod 1; D, right pereopod 2; E, right pereopod 7. Scale bar = 0.25 mm.

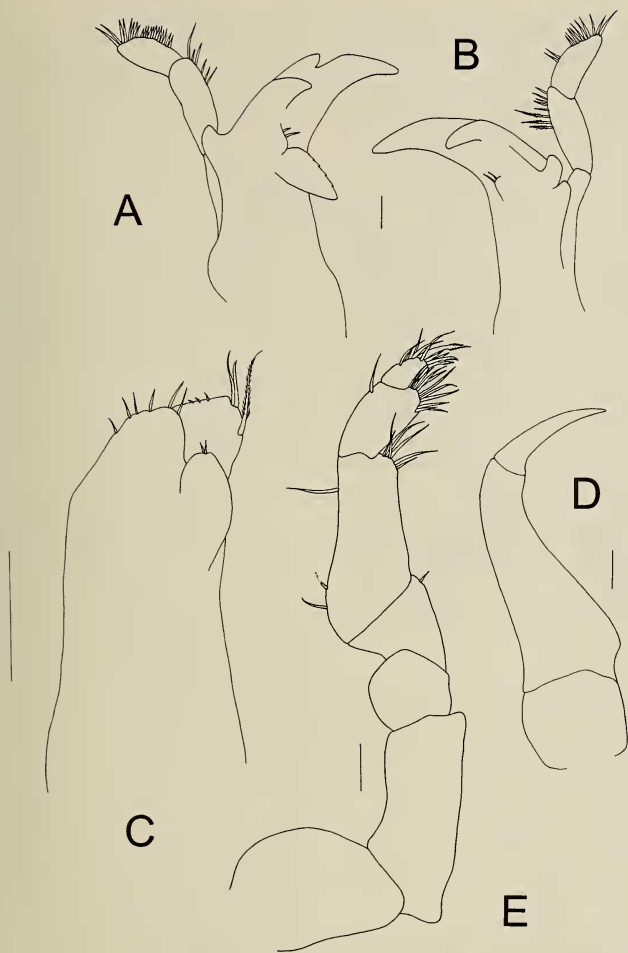


Fig. 3. *Excorallana conabioae*, new species, male holotype (EMU-4942). A, right mandible; B, left mandible; C, right maxilla; D, right maxillula; E, right maxilliped. Scale bar = 0.1 mm.

pair of closely set smaller, median tubercles, just beyond 2 pairs of anterior horns. Anterolateral angle of pereonite 1 produced, partly covering posterior part of eyes. Posterior margin of pereonites 2–5 without conspicuous ornamentation; posterior margin of pereonite 6 crenate, that of pereonite 7 with a crenate section overhanging a lower margin with sub-marginal row of tubercles (Fig. 5A, B, C).

Pleonites 1 and 4 with sub-marginal row of tubercles, median and sub-median tubercles slightly larger on pleonite 1, larger in posterior segments; sub-median tubercles fused in 2 large posteriorly produced sub-medial cluster. A second row of smaller tubercles visible close to anterior margin of each pleonic segment (Fig. 1B). Pleotelson triangular, apex rounded; deep, large notch at about midlength of lateral margin; a row of 6 (3 pairs) sub-basal tubercles, median pair much larger than other 2; a cluster of tubercles above the insertion of uropods; a sub-triangular cluster of strong sub-median bifid setae extending longitudinally on each half of telson, from base of largest sub-basal tubercle to posterior margin; a sub-lateral cluster of tubercles between each patch of setae and lateral margin of telson (Fig. 1D).

Uropods slightly longer than pleotelson, fringed with long setae. Uropodal endopod broad, posteriorly sub-truncate, distal lateral angles rounded with lateral spines, easily lost on preserved specimens. Uropodal endopod less than half width of endopod, also with easily lost marginal spines (Fig. 1D).

Pleopods 1–5 fringed with plumose marginal setae, except endopod of pleopod 5. Appendix masculina rodlike, with simple pointed apex (Fig. 4).

Female. Relatively wider than male (about 2.5 times as long as wide). Anterior pair of cephalic horn-like processes less than half the size of males, posteriormost smaller pair wanting. Largest sub-median pair, clearly visible on anterior half of male first pereonite, reduced to an obsolete pair of small conical tubercles in female; the

other dorsal tubercles on pereonite 1 are wanting. Ornamentation of pereonites 6–7 and of pleotelson similar in male and female, tubercles somewhat smaller in female (Fig. 5D, E, F).

Remarks.—*Excorallana conabioae* is readily separated from most Atlantic species of the genus and from *E. houstoni* and *E. truncata* by the presence of cephalic processes. Among the “horned” species, *E. conabioae* most closely resembled *E. bruscai*, from which it differs by the following characteristics: in *E. conabioae* the cephalic processes are pointing upwards, and the pereonite 1 horns are not strongly produced forwards (with upturned apex) as in *E. bruscai*; the anterior median cephalic margin of *E. bruscai* is strongly produced, while *E. conabioae* features a small rostral point; number of flagellar articles in antenna and antenna of *E. bruscai* is 6–8 and 22–25, respectively, 7–9 and 29–34 in *E. conabioae*; in *E. conabioae* pereonite 1 processes are smaller yet more numerous (three pairs instead of one, very large, in *E. bruscai*); the antenna is much longer and with more numerous flagellular articles in *E. conabioae*; there is no sub-lateral cluster of tubercles on each side of the dorsal side of telson in *E. bruscai*; females of *E. bruscai* lacks horns, while in the new species these features are reduced, yet distinguishable as tubercles on cephalon and on first pereonite (one pair on each).

Other “horned” species of the genus have two large (*E. bicornis* Lemos de Castro & Lima, 1976) or three horns on cephalon [*E. herbicensis* Boone, 1919, and *E. tricornis* (Hansen, 1890)], no lateral incision on pleotelson (*E. longicornis* Lemos de Castro, 1960), or presented four or 6 horns on the cephalon [*E. meridionalis*, *E. quadricornis* (Hansen, 1890), *E. mexicana* Richardson, 1905, and *E. sexticornis* (Richardson, 1901)].

Etymology.—The new species is named for CONABIO (Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, México), in recognition of the support re-

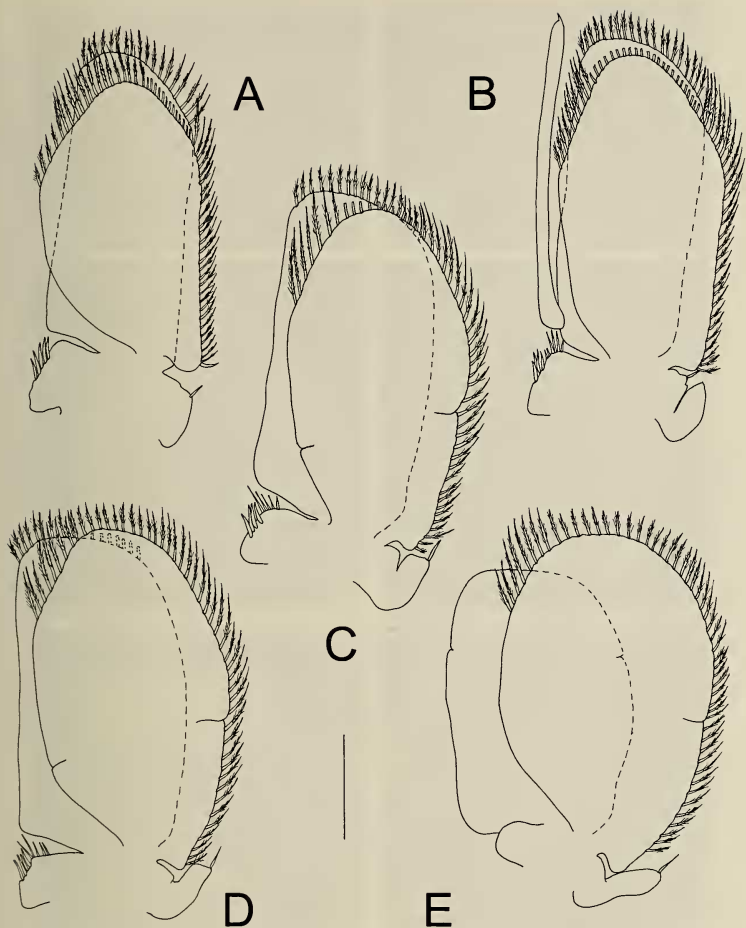


Fig. 4. *Excorallana conabioae*, new species, male holotype (EMU-4942). A, right pleopod 1; B, right pleopod 2; C, right pleopod 2; D, right pleopod 4; E, right pleopod 5. Scale bar = 0.5 mm.

ceived during our study of isopods of the Pacific coast of Mexico.

Habitat.—*Excorallana conabioae* was taken in grab and dredge between 25 and

70 m. Environmental data available at the moment of sampling indicate epibenthic temperature range from 14.2 to 19.8°C and dissolved oxygen concentration always

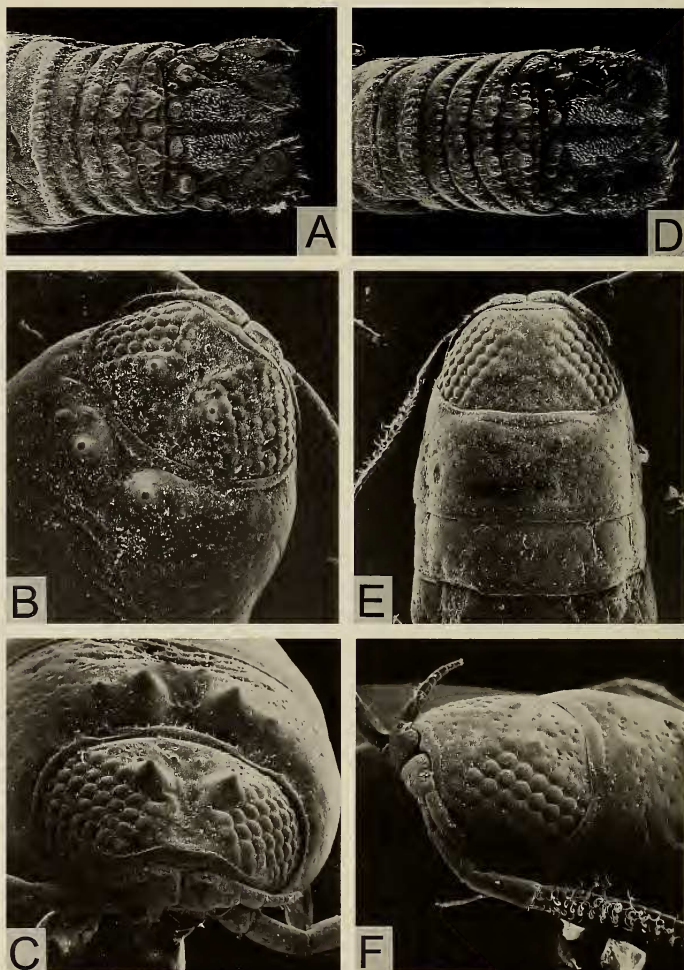


Fig. 5. *Excorallana conabioae*, new species, male (A–C) and female (D–F) paratypes (EMU-4944). A–D, dorsal view of pleotelson; B, dorsal view of cephalon and pereonite 1; C, frontal view of cephalon and pereonite 1; E, dorsal view of cephalon and pereonites 1–2; F, fronto-lateral view of cephalon and pereonite 1 (SEM).

Table 1.—Environmental data available for the captures of *Excorallana conabioae* and *E. bruscai*. Dissolved oxygen and temperature measured at bottom level. S, sand; L, lime; C, clay; VFS, very fine sand; FS, fine sand; MS, medium sand.

Cruise	Station	Depth (m)	O ₂ (ml/l)	Temp. (°C)	Sediments SLC	Grain size
<i>E. conabioae</i>						
CORTES 1	8	55	2.5	16.0	GRAVEL	—
CORTES 2	8	64–70	3.5	17.5	99--	FS
CORTES 3	8	42	3.4	19.5	97--	FS
CORTES 3	19	28	3.5	14.2	100--	MS
<i>E. bruscai</i>						
BBMAZ-C14	8	8	—	—	—	—
BBMAZ-C16	10	4	—	—	—	—
CORTES 1	8	55	2.5	16.0	GRAVEL	—
CORTES 2	47	37	1.5	13.5	---	—
CORTES 3	16	22	4.5	—	87--	VFS
CORTES 3	47	28	4.0	29.4	96--	FS
CEEMEX-P4	10	23–24	4.8	27.5	—	—

higher than 2.4 ml/l O₂; sediments were mostly sandy, with one capture associated with gravels (Table 1).

Geographic distribution.—The new species is restricted to the continental platform along the east coast of Baja California Peninsula, between Carmen Island and San Miguel Cape.

Excorallana bruscai Delaney, 1984

Excorallana sp. Brusca, 1980: 229.

Excorallana bruscai Delaney, 1984: 5, figs. 1–4, 14–17, 22; 1989: 8, 31, 33, figs. 1D, 19, 21, 24.—Wetzer et al. 1991: 25.

Material examined.—CORTES 3 Cruise, St. 16, Punta Arboleda (26°52.02'N, 110°01.05'W), Sonora, Mexico, 31 Jul 1985, 3 males (TL 5.2–7.4 mm), 1 female (TL 5.9 mm) and 2 ovigerous females (TL 7.4–7.5 mm) (EMU-4949). CORTES 2 Cruise, St. 47, Estero Tastiota (28°17.08'N, 111°37.03'W), Sonora, Mexico, 18 Mar 1985, 1 male (TL 10.4 mm) and 2 females (TL 10.5–11.4 mm) (EMU-4950). CORTES 3 Cruise, St. 47, Estero Tastiota (28°20.08'N, 111°41.04'W), Sonora, Mexico, 6 Aug 1985, 1 male (TL 8.6 mm) (EMU-4951). CORTES 1 Cruise, St. 8, Carmen Island (25°34.06'N, 111°58.07'W),

Baja California Sur, Mexico, 4 May 1982, 1 male (TL 5.7 mm) (EMU-4952). BBMAZ 16 Cruise, St. 10, Bay of Mazatlan (23°13.00'N, 106°27.00'W), Sinaloa, Mexico, 27 Nov 1980, 1 female (TL 7.5 mm) (EMU-4953). BBMAZ 14 Cruise, St. 8, Bay of Mazatlan (23°13.00'N, 106°27.00'W), Sinaloa, Mexico, 27 Nov 1980, 2 males (TL 6.9–7.0 mm) and 7 ovigerous females (TL 6.8–9.6 mm) (EMU-4954). CEEMEX P4 Cruise, St. 10, Boca de San Francisco (16°10.00'N, 94°58.09'W), Oaxaca, Mexico, 30 Mar 1991, 1 female (TL 9.0 mm) (EMU-4955). Ensenada de Litigu (20°47.04'N, 105°31.09'W), Nayarit, Mexico, 9 Apr 1996, 1 male (TL 7.6 mm) (EMU-4633). Playa el Tesoro (24°18.00'N, 110°19.00'W), Baja California Sur, Mexico, 17 Jul 1996, 6 males (TL 5.7–8.2 mm) and 16 females (TL 4.7–8.2 mm) (EMU-4634) (CORTES and CEEMEX Cruises specimens collected aboard the R/V *El Puma*).

Remarks.—The present records extend the distribution of this species from Punta Lobos (27°20'N, 110°40'W), Sonora, to Boca de San Francisco (16°10.00'N, 94°58.09'W), Oaxaca, along the east coast of the Gulf of California and western Mexico, and from Concepcion Bay (26°50'N, 111°55'W), Baja California, to the area of

La Paz, Playa el Tesoro (24°18.00'N, 110°19.00'W), Baja California Sur. Collection of isopods were also made in the area of Colima, Jalisco and Michoacan, in western Mexico, during this survey but no specimens of *E. bruscai* were found.

Habitat.—According to Delaney (1984, 1989), *E. bruscai* is found in the intertidal and shallow sub-tidal benthic habitats. Our records for this species, however, indicate that *E. bruscai* is also found in deeper water, on the continental shelf, at least to 55 m, thus sharing a similar lower bathymetric limit with *E. conabioae*. Both species are occasionally sympatric. They co-occurred in one sample, obtained in the Carmen Island area (CORTES 1, St. 8). Environmental conditions indicate an epibenthic temperature range of 13.5–29.4°C and dissolved oxygen concentrations quite variable (1.5 to 4.8 ml/l). Sediments were predominantly sandy (Table 1).

Acknowledgments

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